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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
| 09/243,237 | 02/02/99 | MUKHOPADHYAY | D MDO-2471-D1 |

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IM22/0714

EXAMINER

FORTUNA, A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1723

DATE MAILED: 07/14/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/243,237

Applicant(s)
MUKhopadhyay

Examiner
Ana Fortuna

Group Art Unit
1723



☒ Responsive to communication(s) filed on Apr 7, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 11-36 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 11-36 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 6

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-15, 25-27, 29, 33, are rejected under 35 U.S.C. 103(a) as being unpatentable over Collentro et al.(5,766,479 , 5,670,053). Reference '479 discloses a process treating water having the components claimed in step a), the process includes removal of hardness ions, dissolved gas, e.g CO₂, and more than one reverse osmosis treatment (abstract, column 5, lines 20-68, column 6, lines 55). The product obtained by the process of '479 in a first RO membrane treatment contain ionized material, e.g. silica between 0-20 ppm, and TOC as bicarbonate in the range of 1 to 25 ppm, by further removing gases from the first permeate and treating with a second reverse osmosis membrane module water of 10 mgohm-cm can be produced, therefore, the water produced in the second stage meets the requirement of TOC levels claimed. Reference '479 fails to disclose the process steps in the order and conditions claimed in the present invention, but the products meets the conditions of the product water or treated water as claimed including the TOC and silica levels. Reference '053 also discloses water product with the claimed TOC level, e.g. , 1 to about 5 ppm (column 8, lines 26-31, column 9, lines 24-40, column 10, lines 34-37); removing ionic material in a first reverse osmosis stage up to 95 % is disclosed (column 6, lines 55-65, and removal of 90 % of the remaining ions are removed in the second reverse osmosis membrane (column 9, lines 1-17) therefore, removal of silica as claimed

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should have been expected to the skilled in the art. Reference '053 fails to disclosed the process including all the conditions of the claimed process of making the product water, but teaches the product water with properties., e.g TOC ans silica or ionized species level claimed, the degree of purity measured as resistivity greater than 1 also indicates the degree of purity of the produced water in the references above. Regarding claims 29 and 33 water free of virus and bacteria is produced, e.g. water meeting the USP standards (column 9, line s 24-39).

2. Claims 11-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhave et al. (5,645,727). Reference '727 discloses the product "water" having the TOC, Silica, Boron, bacteria levels claimed (Tables II and III), virus removal is not disclosed, but since the process remove pyrogen and bacteria by reverse osmosis and other polishing steps, virus is also expected to be remove. Reference '727 fails to disclose the process steps for producing water, but discloses the water with the claimed purity. Since product by process claims are product, the rejection is proper.

3. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (5,573,662).

Reference '662 discloses product water with the level of TOC as in the product of the claims above (column 7, Table). The process including the claimed steps for producing the water are not disclosed, but treating the water by reverse osmosis unit, which remove alkalinity and hardness ions, vacuum deaeration to remove gases, ion exchange and ultraviolet as water refining steps.

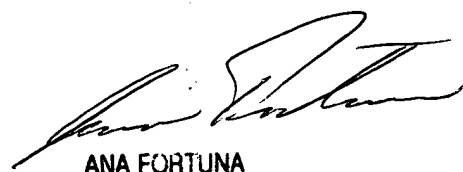
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Therefore, although the process including pH adjustment is not disclosed, producing water having the TOC level claimed is disclosed.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tao et al. (5,250,185). Reference '185 discloses a product water containing 1.2 % of boron (column 7, lines 38-47). The process for producing the product water includes pretreatment, reverse osmosis, pH adjustment prior the reverse osmosis, sodium, calcium, silica sulfate carbonate and TOC are also removed by the process (table I, columns 7-8). It would have been obvious to one skilled in the pertinent art to produce water with the same quality by treating the water at the same pH and by reverse osmosis as suggested by '185.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857.

Facsimile No. (703)305-7718.


ANA FORTUNA
PRIMARY EXAMINER
GROUP 1300
1723

Ana Fortuna

July 13, 2000